



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,325	05/13/2002	Donald Jaffrey	A-71183/DJB/MAK	6999
7590 06/22/2004			EXAMINER	
Flehr Hohbach Test Albritton & Herbert Suite 3400 Four Embarcadero Center San Francisco, CA 94111-4187			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	
DATE MAILED: 06/22/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/009,325	JAFFREY, DONALD	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jonathan S. Crepeau	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action addresses claims 1-11 and newly added claims 12 and 13. Claims 1-11 remain rejected for the reasons of record, and claims 12 and 13 are also rejected for these reasons. Accordingly, this action is made final.

### ***Claim Rejections - 35 USC § 102***

2. Claims 1-3 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 63-236267. Regarding claims 1 and 9, the reference is directed to a molten carbonate fuel cell component (e.g., a separator plate) comprising a heat-resistant alloy (see abstract; page 3, third paragraph of translation). Regarding claims 1 and 2, the alloy comprises 0.5-10 wt% Al, 0.5-10% Si, 0.5-30% Cr, 0.5-7% Ni, and the balance Fe (see claim 3 of the translation). This composition is considered to be anticipatory of the composition recited in claims 1 and 2 because each individual element range overlaps. Regarding claim 3, the alloy does not contain Mn. Regarding claim 8, which recites that source material for the alloy includes scrap metal, this limitation does not have to be accorded patentable weight because it does not further limit the structure of the component. See MPEP §2113. Regarding claims 1 and 11, although the reference is directed to a molten carbonate fuel cell, the alloy-containing component (e.g., separator) is also capable of being used in a solid oxide fuel cell. In this regard, the preamble of

claim 1 is interpreted as a statement of the intended use of the component in a solid oxide fuel cell. See MPEP §2111.02. Regarding claim 10, the separator plate of the reference may also be considered to be a “base plate” or a “heat exchanger plate.”

Thus, the instant claims are anticipated.

### *Claim Rejections - 35 USC § 103*

3. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minh (U.S. Patent 6,296,962) in view of Caule et al (U.S. Patent 3,811,874).

Regarding claims 1, 9-11 and 13, Minh is directed to a solid oxide fuel cell comprising an interconnect plate (i.e., “separator” or “base” plate) (12) which is made of a heat and oxidation-resistant alloy (see col. 4, lines 14-16).

However, the reference does not expressly teach the composition of the alloy as recited in instant claims 1-5 and 13, or that the plate has a surface layer of aluminum oxide, as recited in claims 6, 7, and 12.

The patent of Caule et al. is directed to an oxidation resistant iron base alloy. In column 1, line 54 et seq., the reference teaches that the alloy may comprise 1-7 wt% Al, 1-4% Si, up to 0.04% P, up to 0.04% S, up to 1.5% Mn, and up to 2% carbon. The alloy does not contain Cr (see Table A). The alloy further has a layer of  $\text{Al}_2\text{O}_3$  on the surface when exposed to an oxidizing environment (see col. 5, lines 23-27).

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the oxidation-resistant alloy of Caule et al. as the material of the oxidation-resistant interconnect plate of Minh. In column 1, lines 34-49, Caule et al. teach that their alloy has a "low cost" and exhibits "improved resistance to corrosion in ambient environments without the disadvantage of extensive red rust rundown." Accordingly, the artisan would be motivated to use the alloy of Caule et al. in the interconnect plate of Minh. It is noted that the alloy composition disclosed by Caule et al. is considered to be anticipatory of the alloy composition recited in claims 1-5 because each individual element range overlaps.

Regarding claims 7 and 12, the thickness of the aluminum oxide film which is formed on the surface of the alloy of Caule et al. is a parameter which may be manipulated by the skilled artisan. Aluminum oxide is recognized by the prior art as being a poor electrical conductor. Therefore, the artisan would have motivation to make this layer as thin as possible while at the same time making it thick enough so as to maintain good oxidation resistance. Accordingly, the claimed range of 1-10 (1-3) microns is not considered to distinguish over the references.

Regarding claim 8, which recites that source material for the alloy includes scrap metal, as noted above, this limitation does not have to be accorded patentable weight because it does not further limit the structure of the component.

*Response to Arguments*

4. Applicant's arguments filed April 6, 2004 have been fully considered but they are not persuasive. Applicants state that "the Kodama patent lacks the solid oxide fuel cell system component of the present invention, as called for by independent claim 1." While it is acknowledged that the Kodama patent is directed to a molten carbonate fuel cell, it is submitted that the preamble of claim 1 merely calls for a component that is usable in a solid oxide fuel cell. Since the component of Kodama would be usable in such a solid oxide fuel cell, it is submitted that the reference is still applicable to claim 1.

Applicants further state that "[w]hile the broad composition range disclosed in the Kodama patent may overlap with the composition range of claim 1, the Kodama patent fails to disclose the narrow claimed composition with 'sufficient specificity to constitute an anticipation.'" It is first noted that MPEP §2131.03 discusses the concept of "sufficient specificity" as follows:

When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious. The question of "sufficient specificity" is similar to that of "clearly envisaging" a species from a generic teaching.

Applicants further urge that the ranges of the present invention provide an unexpected result, namely an alumina layer on the surface of the component. However, it is submitted that such a result would be expected when the component is used in a solid oxide environment, as shown in the Caule patent. Furthermore, Applicants have not actually shown how the narrower ranges of the claims produce an unexpected result. In the absence of such evidence (e.g., in the form of

comparative data, etc.), it is submitted that the disclosure of the Kodama patent is still sufficient to anticipate the claimed invention.

With regard to both the Kodama and the Caule patents, Applicants assert that neither reference discloses examples that read on the claimed compositions. With regard to the Minh reference, Applicants state that this reference teaches away from the present invention because the only examples of materials for the components are nickel chromium and iron chromium. However, it is noted that the disclosure of a reference is not limited to its examples. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); MPEP §2123. Further, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

Regarding the Caule patent, Applicants state that “in contrast to the present invention, silicon is not present at all and germanium must be present.” However, this is not the case, as evidenced by the broad disclosure of the Caule patent. The alloy may contain either Si or Ge, but it is not required to contain one or the other. See column 1, line 60 of Caule. Applicant appears to be referring to claim 1 of Caule, which specifies that element (B) is Ge. However, as noted above, the broader disclosure of Caule is not limited to Ge.

Regarding Applicant’s request for citation of authority that the “scrap metal” limitation does not have to be accorded patentable weight, Applicant’s attention is directed to MPEP §2113. It is maintained that because the “scrap metal” limitation is essentially a process

limitation that does not meaningfully limit the structure of the final product, it does not have to be accorded patentable weight. It is the Applicant's burden to show that the limitation further limits the component in a structural sense.

Regarding the Examiner's assertion that the thickness of the aluminum oxide film is a parameter that may be manipulated by the artisan, the Caule reference discloses that the film is "compact" in column 2, line 4. Thus, the position is maintained that the artisan would have motivation to make this layer relatively thin. Furthermore, Jaffrey (U.S. Patent 6,444,340) teaches an alumina layer on a gas separator which has a thickness of "preferably no more than a few microns, for example about 1 to 5  $\mu\text{m}$  or less" (see col. 4, line 28). Accordingly, Applicant's claimed range of alumina thickness is still not considered to patentably distinguish over the references.

### *Conclusion*

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

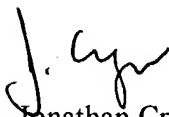


will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jonathan Crepeau  
Patent Examiner  
Art Unit 1746  
June 18, 2004